Math 1743 - Math Center Worksheet
Section 2.1

1. A discount store has calculated from past sales data the weekly revenue resulting from the sale of blenders:

# blenders	4	7	10	13	16	19	22
revenue (dollars)	114	247	356	418	451	446	412

a. Find the change in revenue as the number of blenders increases from 7 to 16.

b. Find the percentage change in revenue as the number of blenders increases from 7 to 16.

c. Find the average rate of change in revenue as the number of blenders increases from 7 to 16.

2. Suppose a model for lead usage in paints from 1940 through 1980 is given by:
$L(x) = 0.057x^2 - 3.986x + 69.429$ thousand tons of lead, x years after 1940.
a. Find the change in lead usage between 1950 and 1975.

b. Find the percentage change in lead usage between 1950 and 1975.

c. Find the average rate of change in lead usage between 1950 and 1975.

Math 1743 - Math Center Worksheet
Section 2.2

1. The graph below shows the projected population of 18-24 year olds in SC between 1990 and 2025.

Projected 18-24year old Population in SC
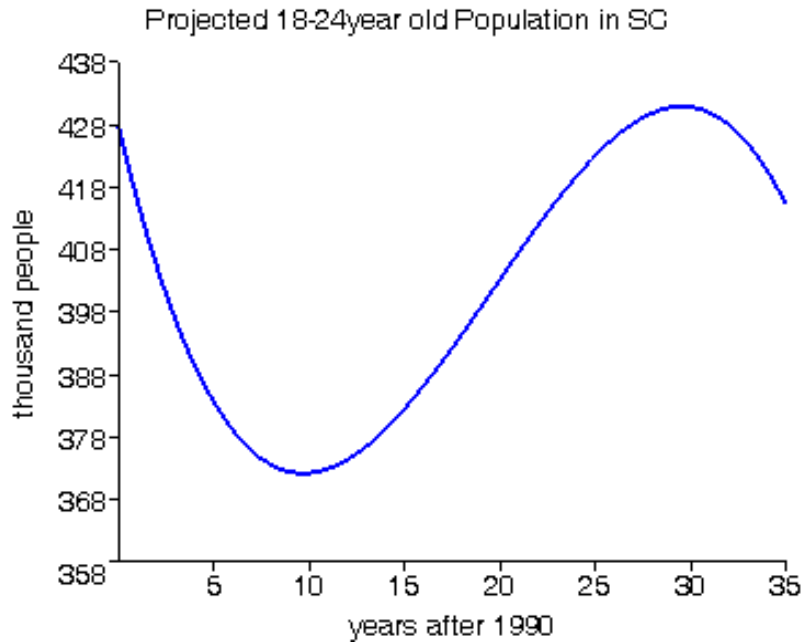
a. Locate the point on the graph where x = 5 and estimate the y-coordinate.
b. Draw a line tangent to the graph at x = 5.
c. Estimate a second point on the tangent line
d. Find the slope of the tangent line.
e. Give units with your answer to part d.
f. Use your answers to parts a and d to find the percentage rate of change of the population of 18-24 year olds in South Carolina in 1995.

2. Refer to the graph.
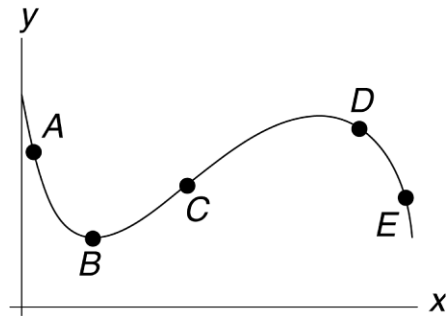
a. At each labeled point on the graph, determine whether the instantaneous rate of change is positive, negative or zero.

A _____   B _____   C _____

D _____   E _____

b. Is the graph steeper at point *A* or point *B*?_____

c. Is the graph steeper at point *D* or point *E*?_____

d. At which labeled point is the function value increasing most

rapidly?_____

Math 1743 - Math Center Worksheet
Section 2.3

1. A(x) million is the number of passengers traveling on an airline during the xth month of 1998

a. Input units:_____Output units:_____ Units on A′(x) :_____

b. Write a sentence of interpretation for A′(9) = ⁻1.28

2. P(m) is the median sale price (in thousands of dollars) of condominiums in a metropolitan area
      m years after 1993

a.   Input units:_____Output units:_____ Units on P′(m) :_____

b.   Give a sentence of practical interpretation for $\left.\dfrac{dP}{dm}\right|_{m=6} = -8.2$.

3. Sketch the graph of a single function that meets all of the following criteria. Clearly label your graph.

      a.   The function is defined for all values of x from -5 to 5.
      b.   The derivative is positive when $-5 < x < -3$.
      c.   The derivative is zero at $x = -3$.
      d.   The derivative is negative when $-3 < x < 2$.
      e.   The derivative does not exist at $x = 2$.
      f.   The derivative is positive when $2 < x < 5$.

y

x